Complete Summary

TITLE

Radiology: percentage of final reports for CT examinations performed with documentation of use of appropriate radiation dose reduction devices OR manual techniques for appropriate moderation of exposure.

SOURCE(S)

American College of Radiology, Physician Consortium for Performance Improvement®, National Committee for Quality Assurance. Radiology physician performance measurement set. Chicago (IL): American Medical Association, National Committee for Quality Assurance; 2009 Feb. 42 p.

Measure Domain

PRIMARY MEASURE DOMAIN

Process

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the Measure Validity page.

SECONDARY MEASURE DOMAIN

Does not apply to this measure

Brief Abstract

DESCRIPTION

This measure is used to assess the percentage of final reports for computed tomography (CT) examinations performed with documentation of use of appropriate radiation dose reduction devices OR manual techniques for appropriate moderation of exposure.

RATIONALE

While the use of computed tomography (CT) in adults and children has increased nearly 7-fold in the past 10 years, data suggests that the lifetime risk for cancer can be increased, albeit by a small amount, with frequent or repeated exposure to ionizing radiation. The BEIR (Biological Effects of Ionizing Radiation) report concluded that "the linear no-threshold model (LNT) provided the most reasonable

description of the relation between low-dose exposure to ionizing radiation and the incidence of solid cancers that are induced by ionizing radiation." Although dose reduction techniques, such as automated exposure controls, have been shown to reduce radiation dose by 20-40%, broad use of procedures or protocols is not in place to tailor CT examinations to the patient for dose reduction. As children are more sensitive to radiation and have a longer anticipated lifespan over which time cancerous changes may occur, the As Low As Reasonably Achievable (ALARA) concept is of particular concern in this population. The National Cancer Institute has noted "adjustments are not frequently made in the exposure parameters that determine the amount of radiation children receive from CT, resulting in a greater radiation dose than necessary."*

*The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure:

Radiologists, radiologic technologists, and all supervising physicians have a responsibility to minimize radiation dose to individual patients, to staff, and to society as a whole, while maintaining the necessary diagnostic image quality. This is the concept "As Low As Reasonably Achievable (ALARA)." (American College of Radiology [ACR])

Facilities, in consultation with the medical physicist, should have in place and should adhere to policies and procedures, in accordance with ALARA, to vary examination protocols to take into account patient body habitus, such as height and/or weight, body mass index or lateral width. (ACR)

The dose reduction devices that are available on imaging equipment should be active or manual techniques should be used to moderate the exposure while maintaining the necessary diagnostic image quality. (ACR)

PRIMARY CLINICAL COMPONENT

Computed tomography (CT); radiation dose reduction

DENOMINATOR DESCRIPTION

All final reports for Computed tomography (CT) examinations performed

NUMERATOR DESCRIPTION

Final reports for CT examinations that include documentation of use of appropriate radiation dose reduction devices OR manual techniques for appropriate moderation of exposure (see the related "Numerator Inclusions/Exclusions" field in the Complete Summary)

Evidence Supporting the Measure

EVIDENCE SUPPORTING THE CRITERION OF QUALITY

- A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Use of this measure to improve performance

EVIDENCE SUPPORTING NEED FOR THE MEASURE

Frush DP. Review of radiation issues for computed tomography. Semin Ultrasound CT MR2004 Feb;25(1):17-24. [41 references] PubMed

State of Use of the Measure

STATE OF USE

Current routine use

CURRENT USE

Internal quality improvement

Application of Measure in its Current Use

CARE SETTING

Ambulatory Care
Ancillary Services
Hospitals
Physician Group Practices/Clinics

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Physicians

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Individual Clinicians

TARGET POPULATION AGE

All patients, regardless of age

TARGET POPULATION GENDER

Either male or female

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

Unspecified

ASSOCIATION WITH VULNERABLE POPULATIONS

Unspecified

BURDEN OF ILLNESS

Unspecified

UTILIZATION

Unspecified

COSTS

Unspecified

Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Safety

Data Collection for the Measure

CASE FINDING

Users of care only

DESCRIPTION OF CASE FINDING

All final reports for Computed tomography (CT) examinations performed

DENOMINATOR SAMPLING FRAME

Patients associated with provider

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions
All final reports for Computed tomography (CT) examinations performed

Exclusions
None

RELATIONSHIP OF DENOMINATOR TO NUMERATOR

All cases in the denominator are equally eligible to appear in the numerator

DENOMINATOR (INDEX) EVENT

Diagnostic Evaluation
Encounter

DENOMINATOR TIME WINDOW

Time window is a single point in time

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions
Final reports for CT examinations that include documentation of use of appropriate radiation dose reduction devices OR manual techniques for appropriate moderation of exposure

Note: Physician will need to document that radiation dose reduction device (i.e., automated exposure control) was turned on for each scan or that the ALARA protocol was followed for manual techniques (i.e., patient-size-specific scan parameters), while maintaining the necessary diagnostic image quality.

Exclusions
None

MEASURE RESULTS UNDER CONTROL OF HEALTH CARE PROFESSIONALS, ORGANIZATIONS AND/OR POLICYMAKERS

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

NUMERATOR TIME WINDOW

Encounter or point in time

DATA SOURCE

Administrative data
Medical record

LEVEL OF DETERMINATION OF QUALITY

Individual Case

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Rate

INTERPRETATION OF SCORE

Better quality is associated with a higher score

ALLOWANCE FOR PATIENT FACTORS

Unspecified

STANDARD OF COMPARISON

Internal time comparison

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

Unspecified

Identifying Information

ORIGINAL TITLE

Measure #7: CT radiation dose reduction.

MEASURE COLLECTION

The Physician Consortium for Performance Improvement® Measurement Sets

MEASURE SET NAME

Radiology Physician Performance Measurement Set

SUBMITTER

American Medical Association on behalf of the American College of Radiology, Physician Consortium for Performance Improvement®, and National Committee for Quality Assurance

DEVELOPER

American College of Radiology
National Committee for Quality Assurance
Physician Consortium for Performance Improvement®

FUNDING SOURCE(S)

Unspecified

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FINANCIAL DISCLOSURES/OTHER POTENTIAL CONFLICTS OF INTEREST

Conflicts, if any, are disclosed in accordance with the Physician Consortium for Performance Improvement® conflict of interest policy.

INCLUDED IN

Ambulatory Care Quality Alliance

ADAPTATION

Measure was not adapted from another source.

RELEASE DATE

2007 Oct

REVISION DATE

2009 Feb

MEASURE STATUS

This is the current release of the measure.

This measure updates a previous version: American College of Radiology, Physician Consortium for Performance Improvement®, National Committee for Quality Assurance. Radiology physician performance measurement set. Chicago (IL): American Medical Association, National Committee for Quality Assurance; 2007 Oct. 42 p.

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American College of Radiology, Physician Consortium for Performance Improvement®, National Committee for Quality Assurance. Radiology physician performance measurement set. Chicago (IL): American Medical Association, National Committee for Quality Assurance; 2009 Feb. 42 p.

MEASURE AVAILABILITY

The individual measure, "Measure #7: CT Radiation Dose Reduction," is published in the "Radiology Physician Performance Measurement Set." This document and technical specifications are available in Portable Document Format (PDF) from the American Medical Association (AMA)-convened Physician Consortium for Performance Improvement® Web site: www.physicianconsortium.org.

For further information, please contact AMA staff by e-mail at cqi@ama-assn.org.

NQMC STATUS

This NQMC summary was completed by ECRI Institute on February 1, 2008. The information was verified by the measure developer on April 10, 2008. This NQMC summary was updated by ECRI Institute on April 23, 3009. The information was verified by the measure developer on September 16, 2009.

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